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Identifying soybean seedling diseases

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INTEGRATED CROP MANAGEMENT

Identifying soybean seedling diseases

The cool weather early in the planting season makes generalizations about seedling diseases difficult. Although cool soil temperatures are favorable for infections by *Pythium* and *Fusarium*, soil moisture was not good for these two disease-causing fungi until last week (week of May 6), when rainfall saturated the soil. If there is another large rainfall in the next week or so, some seedling disease problems may occur, and the types of diseases depend on the temperature this week and next week. This article discusses identification of the possible diseases.

Phytophthora damping-off

Symptoms of *Phytophthora*-infected plants may or may not be visible. If soybean seed is infected before emergence, seed rot occurs. If seedlings are infected, leaves are initially gray-green and then turn brown. A few days later, the plants may die. Diseased plants are easily pulled from the soil because of rotted roots. Weekly periodic rain is essential for the occurrence of this disease.

Pythium damping-off



Soybean damping-off by *Pythium*.

[Enlarge](#) [1]

Symptoms of *Pythium* damping-off are similar to those of *Phytophthora* damping-off, except *Phytophthora* damping-off may continue to develop on the soybean stem. The result is a chocolate brown discoloration from the soil line up, a unique symptom of this disease. Infection of *Pythium* damping-off occurs in cooler soil (lower than 60°F) and *Phytophthora* prefer warmer soil (70-80°F). By checking temperatures a week before a disease problem occurs, you can reasonably tell the cause of the disease.

Rhizoctonia



Seedling disease by *Rhizoctonia*.

Seedling blight by *Rhizoctonia* normally appears when the weather becomes warm, which is similar to Phytophthora damping-off. Stem discoloration by *Rhizoctonia* is usually limited to the cortical layer of the main root and hypocotyl. Infected stems remain firm and dry. Typical symptoms are localized brown-to-reddish brown lesions on the hypocotyl on the soil line. Root rot is visible on severely infected plants.

Fusarium

A study by Iowa State University indicated that the above-mentioned three fungi contribute to 90 percent of early-season stand establishment problems. The rest is caused by *Fusarium*. Infections by *Fusarium* more often cause root rot than damping-off. Symptoms of infected seedlings have root rot with color ranging from reddish brown to dark brown.

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[1] <http://www.ent.iastate.edu/imagegal/plantpath/soybean/dampoff/1303.7soydampoff.html>

[2] <http://www.ent.iastate.edu/imagegal/plantpath/soybean/sdlnghlight/3185.10rhizoctonia.html>

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